GENERAL SAFETY
TAILGATE LESSON PLAN

Hand Tool Safety (Striking Tools)

CITY AND COUNTY OF HONOLULU
DEPARTMENT OF HUMAN RESOURCES
Division of Industrial Safety and Workers' Compensation

TAILGATE LESSON PLAN

HAND TOOL SAFETY

Striking Tools: Hammers, Sledges, Axes and Hatchets

The following information has been prepared for tailgate sessions with your employees. Discuss this topic with each of your workers within two weeks from the date you receive this. Keep this instruction sheet for future sessions and as reference material. Also keep a record of your employees who have received this tailgate lesson.

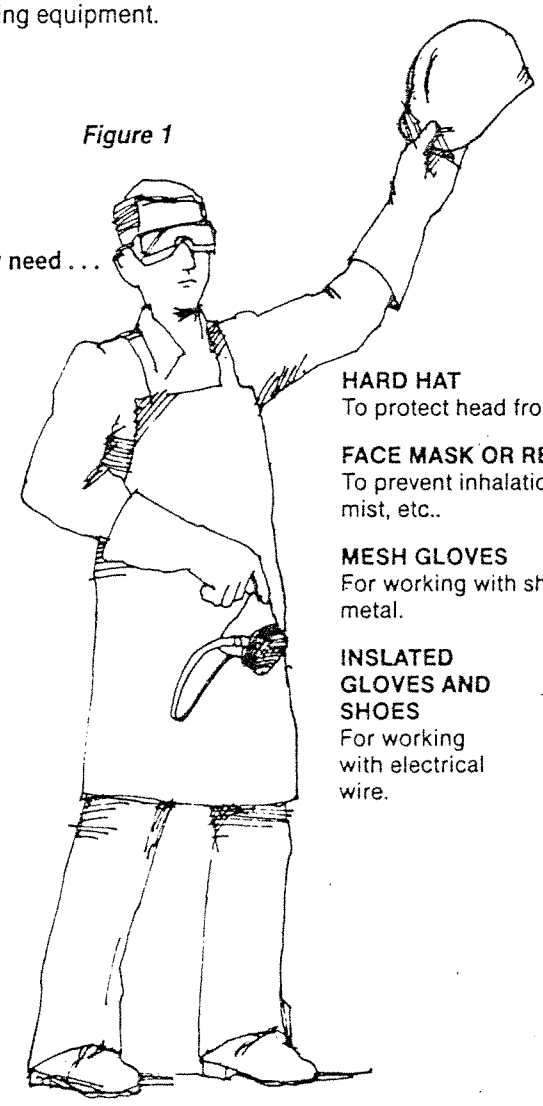
Other types of hand tools such as Struck Tools, Cutting Tools, etc., will be featured in future tailgate lessons.

General Instructions

A. Know your hand tools. Employees must be trained to use tools properly and safely.

B. Use personal protective equipment such as safety shoes, safety goggles, apron, hard hat, dust mask or respirator, mesh gloves (for working with sharp objects and sheet metal, insulated gloves (for working with electrical wire), etc. [Figure 1]. Avoid wearing neck chains, rings, watches and other jewelry that might snag tools, machines and other moving equipment.

Figure 1



DRESS FOR THE JOB
Depending on what you're doing, you may need . . .

SAFETY GOGGLES OR GLASSES WITH SIDESHIELDS
To protect eyes when hammering, sawing, drilling, chipping or doing any work that may cause flying particles.

WORKGLOVES
To protect hands and fingers.

APRON
To protect body from sharp objects and protect your clothes.

STEEL-TOED WORKBOOTS
To protect feet from dropped objects.

HARD HAT
To protect head from falling objects.

FACE MASK OR RESPIRATOR
To prevent inhalation of dust, fumes, mist, etc..

MESH GLOVES
For working with sharp objects, sheet metal.

INSLATED GLOVES AND SHOES
For working with electrical wire.

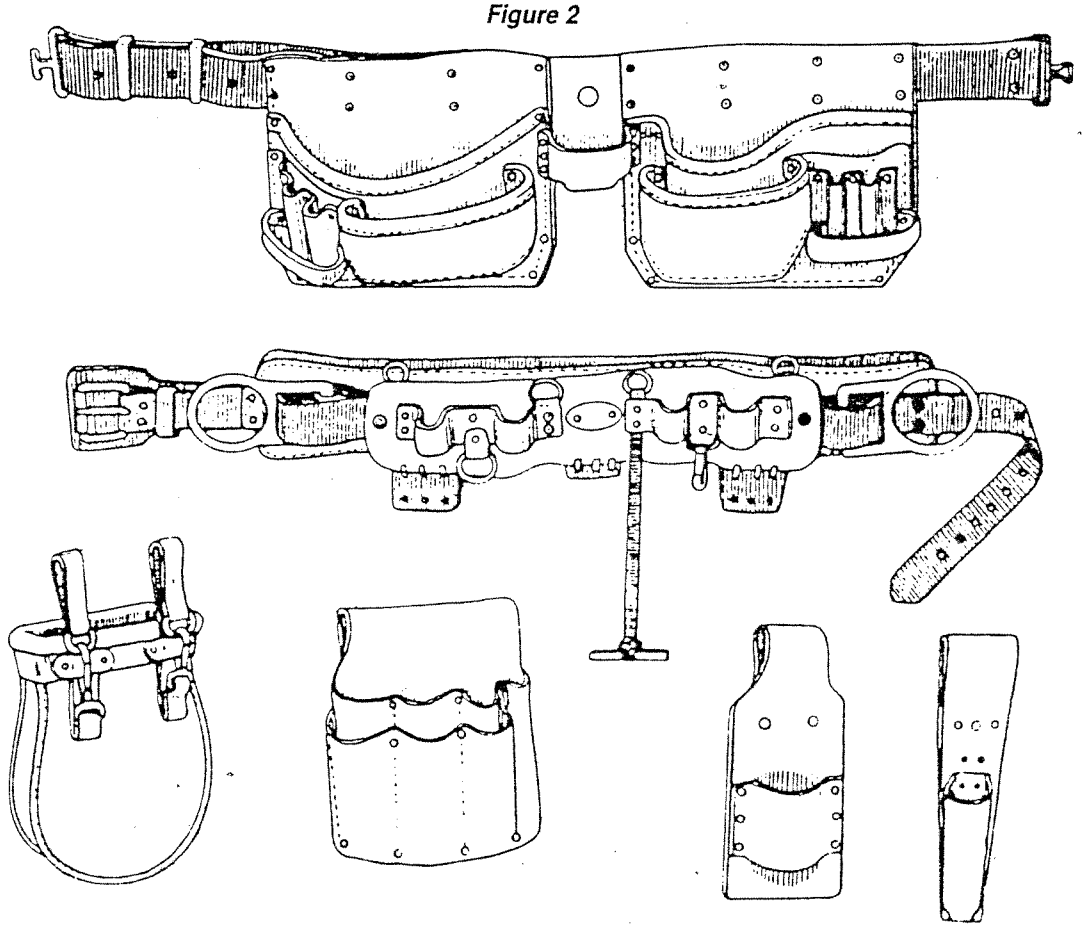
C. Inspect work area. Remove objects and debris that may damage tools or pose a hazard when hand tools are used.

D. Inspect your hand tools before each use. Do not use defective or damaged hand tools and report any problems to your supervisor. Replace splintered or loose handles.

E. Select the right tool for the job. Do not substitute an improper tool to complete the job. Substituting an improper tool increases the chance of hurting yourself and others, and also contributes to doing a poor job. Always select the proper sized tools.

F. Use a carrying belt or box to transport your hand tools. Never carry tools, especially pointed or cutting tools, in your pocket. Use a toolbox, belt or cart instead. When climbing a ladder or scaffolding with tools, always carry them in a tool belt [Figure 2].

Figure 2



CARRY BELT FOR TOOLS

Miscellaneous tool holders and pouches. Equipment of this type frees hands while climbing and working on ladders, poles, and other elevated areas.

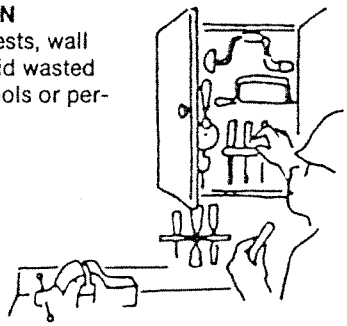
F. Make sure that you have adequate lighting when using hand tools. No job is safe unless you can see what you're doing. Also, avoid cluttering your work area and keep bystanders away.

G. Hand tools should be kept clean and dry, and stored properly after each use to prevent them from becoming damaged or causing personal injury [Figure 3].

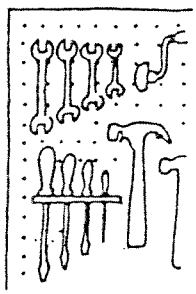
1. Store tools in cabinets, tool chests, wall racks and in designated storage areas.
2. Sheath sharp tools and keep them in a drawer or tray.
3. Keep tools in groups by type such as hammers, screwdrivers, wrenches, etc.
4. Never store large, heavy tools, such as axes, overhead or in a place where they could fall and injure someone.

Figure 3

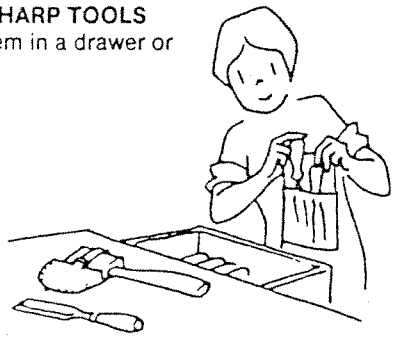
STORE TOOLS IN
cabinets, tool chests, wall racks, etc. to avoid wasted time, damaged tools or personal injury.



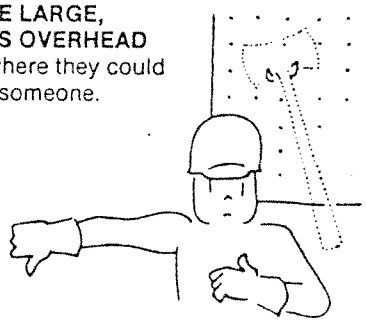
KEEP TOOLS IN GROUPS
by type: screwdrivers, wrenches, hammers, etc. Keep frequently used tools most accessible.



SHEATHE SHARP TOOLS
and keep them in a drawer or tray.



NEVER STORE LARGE, HEAVY TOOLS OVERHEAD
or in a place where they could fall and injure someone.



STRIKING TOOLS

Hammers and other striking tools are the most widely used and probably the most often abused of all hand tools. Because they are made in various types, sizes and shapes, striking tools should be selected and used only for those purposes for which they were designed. Misuse may cause the striking face to chip, resulting in an eye or other serious injury. The following information is provided as a guide to help employees use common striking tools in a safe and proper manner.

Safety Tips

A. Always wear safety goggles to protect your eyes. Also wear safety shoes, gloves and other personal protective equipment, as necessary.

B. Before swinging a sledge, axe or hammer, check the area around you to be sure that people and objects are a safe distance away.

C. Never strike a metal surface with either end of an axe or hatchet.

D. Keep your eyes on the object that you are hitting.

E. Keep hatchets and axes sharp. Protect the edges by covering them with a sheath when not in use.

F. Always hit objects with the tool's striking face. Avoid striking objects with a hammer or sledge sideways or with glancing blows.

Proper Use of Striking Tools

A. A hammer blow should always be struck squarely with the hammer striking face parallel with the surface being struck [Figure 4].

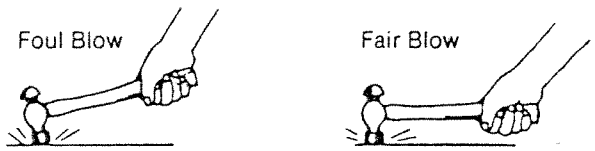


Figure 4

B. When striking another tool (struck tools: chisel, punch, wedge, etc.), the striking face of the hammer should have a diameter approximately 3/8" larger than the struck face of the tool.

C. Always use a hammer of suitable size and weight for the job. For example, don't use a sledge to drive in a tack.

D. Never use one hammer to strike another hammer or a hatchet.

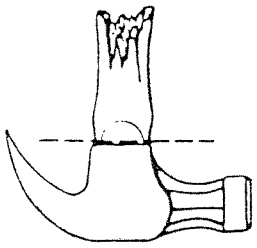
E. NEVER USE A STRIKING OR STRUCK TOOL WITH A LOOSE OR DAMAGED HANDLE. Notify your supervisor of any defects in the tool. Loose or damaged handles may be replaced [Figure 5].

F. Do not use any striking or struck tool if it shows dents, mushrooming or excessive wear. Report these defective conditions to your supervisor for disposal of such tools.

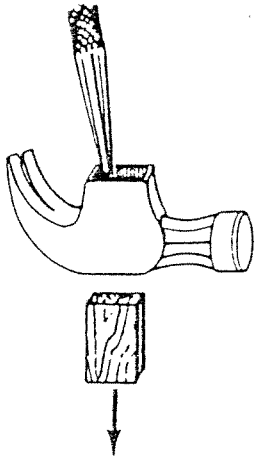
G. Do not regrind, weld or reheat-treat a hammer.

Figure 5

HOW TO REPLACE THE HANDLE OF A NAIL HAMMER

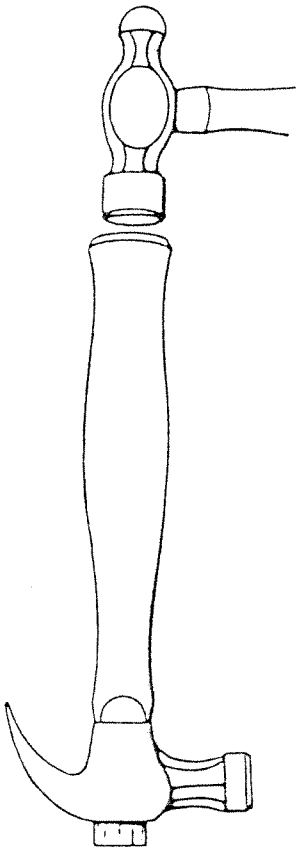


1. Saw off the broken or splintered handle below the eye.

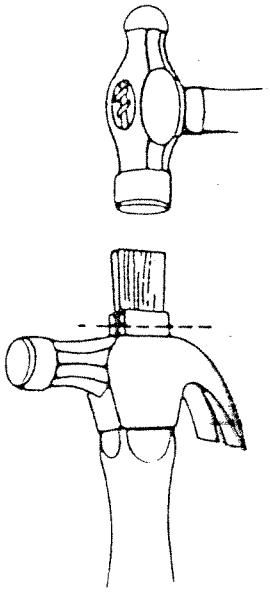


2. Drive out the eye section of the old handle with a punch or chisel.

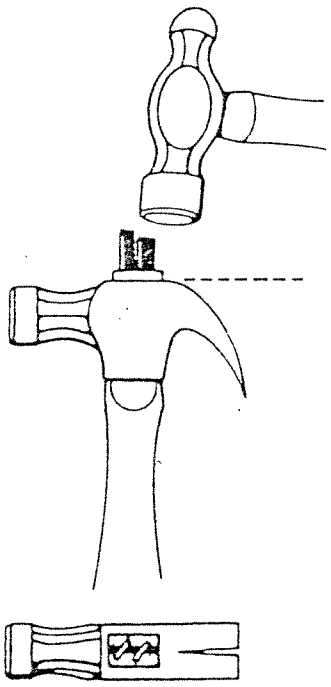
3. Make sure the new handle fits the hammer. Cut one slot (or two evenly spaced slots) in the handle, 2/3 to 3/4 the distance through the eye.



4. Drive the new handle to its shoulder. It will project about 3/8 inch through the eye.



5. Drive wood wedge(s) into slot(s). Cut handle about 1/8 inch outside of head.

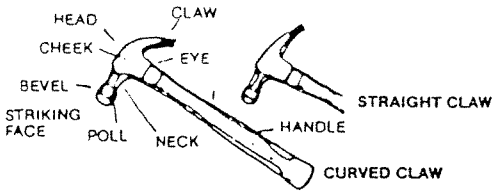


6. Form starting grooves for two metal wedges with a cold chisel. Drive the steel wedges as far as possible. With a hack saw, cut off excess portion of handle and wedges.

TYPES OF STRIKING TOOLS

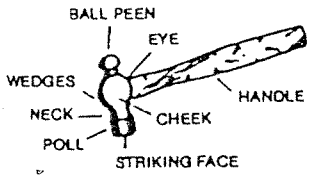
Nail Hammer - designed for driving unhardened common and finishing nails using only the center of the hammer face. The claws are for pulling nails and ripping woodwork but should not be struck against metal.

NAIL HAMMERS



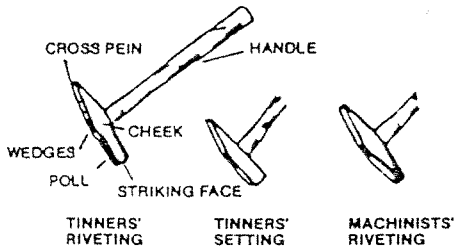
Ball Peen Hammer - designed for striking chisels and punches, for riveting, shaping and straightening unhardened metal.

BALL PEEN HAMMERS



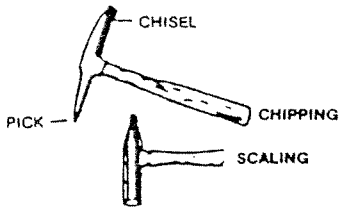
Riveting and Setting Hammer - the riveting hammer is designed for driving and spreading rivets on sheet metal work. The setting hammer is designed for forming sharp corners, closing and flattening (peening) seams and locking edges.

RIVETING AND SETTING HAMMERS



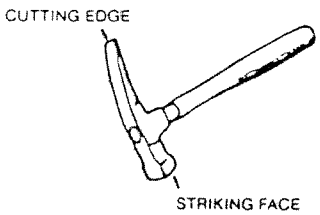
Scaling and Chipping Hammers - designed for chipping welds, scale, rust and paint from unhardened metal.

SCALING AND CHIPPING HAMMERS



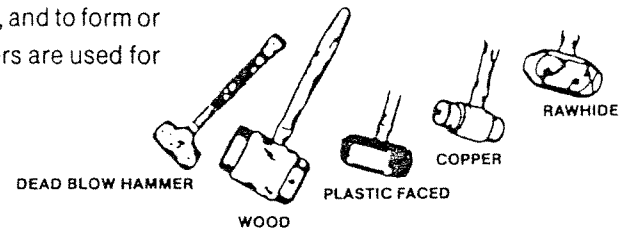
Bricklayers' Hammer - designed for setting and splitting bricks, masonry tile and concrete blocks, and for chipping plastic building materials (mortar) from bricks.

BRICKLAYERS' HAMMERS



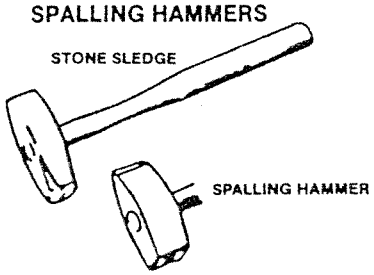
Mallets - wooden mallets are used for striking wood and plastic chisels, gouges, wood pins and small stakes, and to form or shape sheet metal. Rubber and plastic hammers are used for setting stone.

SOFT FACE AND NON-FERROUS HAMMERS AND MALLETS



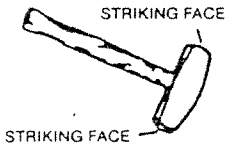
Stone Sledges and Spalling Hammers - stone sledges are designed for breaking up stone and concrete. The spalling hammer is designed for cutting and shaping stone and concrete.

STONE SLEDGES AND SPALLING HAMMERS



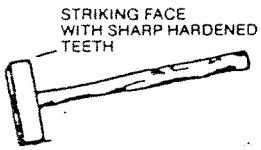
Hand Drilling or Mash Hammers - designed for uses with chisels, punches, star drills and hardened nails. Because these hammers permit heavy blows with limited swing, they are advantageous in restricted working areas.

HAND DRILLING OR MASH HAMMERS



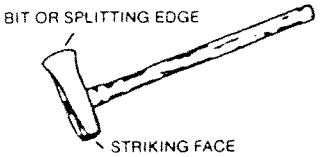
Bush Hammers - designed for the purpose of roughing and chipping concrete. Use this type of hammer only for striking concrete.

BUSH HAMMERS



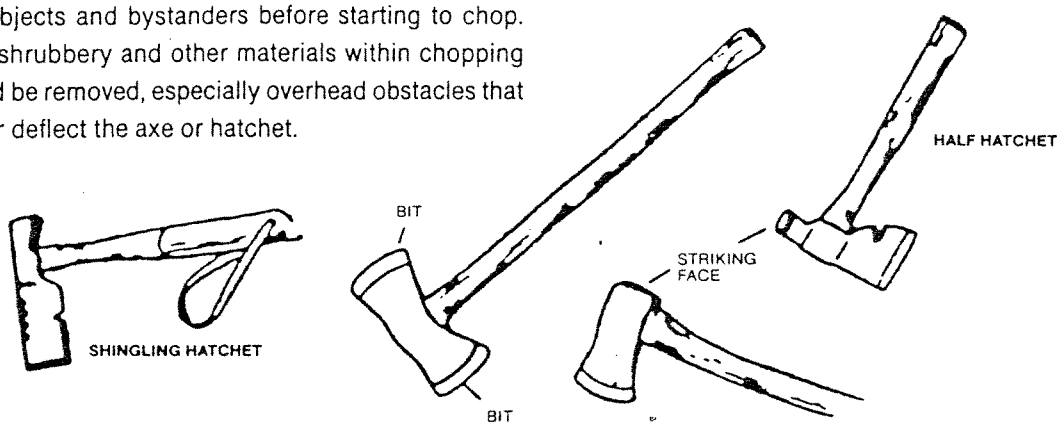
Woodchopper's Mauls - designed for splitting wood only. Never use this tool to strike concrete.

WOODCHOPPERS MAULS



Axes and Hatchets [Figure 6] - designed for cutting wood and equally soft materials. They should never be struck against metal, stone or concrete, and against chisels, punches or other hardened metal tools. Do not use an axe or hatchet with a loose or damaged handle. Employees must be sure the area is clear of objects and bystanders before starting to chop. Also, vines, shrubbery and other materials within chopping range should be removed, especially overhead obstacles that may catch or deflect the axe or hatchet.

Figure 6
AXES AND HATCHES



- **Axes:** The double bit axe is used to fell, trim or prune trees and to split and cut wood. It is also used for notching and shaping logs and timbers. The single bit axe, has a similar function as a double bit axe, but is also used to drive wooden stakes with its striking face. A narrow-bladed axe should be used for hard wood, and a wide axe for soft wood. A sharp, well-honed axe yields better chopping speed and is much safer to use because it bites into the wood [Figure 7]. A dull axe will often glance off the wood being cut and may strike the user in the foot or leg. The proper grip for a right-handed person is to have the left hand about 3 inches from the butt end of the handle and the right hand about three-fourths of the way up [Figure 8].

- **Hatchets:** Hatchets are used for many purposes and frequently cause injury. They are used for cutting, splitting, trimming and hewing, and driving unhardened common nails and stakes with the striking face. Hatchets should never be used to strike chisels, punches or other hard metal tools. To properly start a hatchet cut, strike the wood lightly with the hatchet, then force the blade through by striking the wood against a solid block of wood.

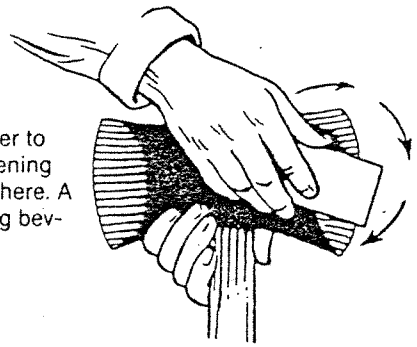


Figure 7

Good honing saves labor and makes an axe safer to use: The axe should be honed after each sharpening and each use. Correct honing motion is shown here. A double bit axe can be ground to different cutting bevels for various types of work.

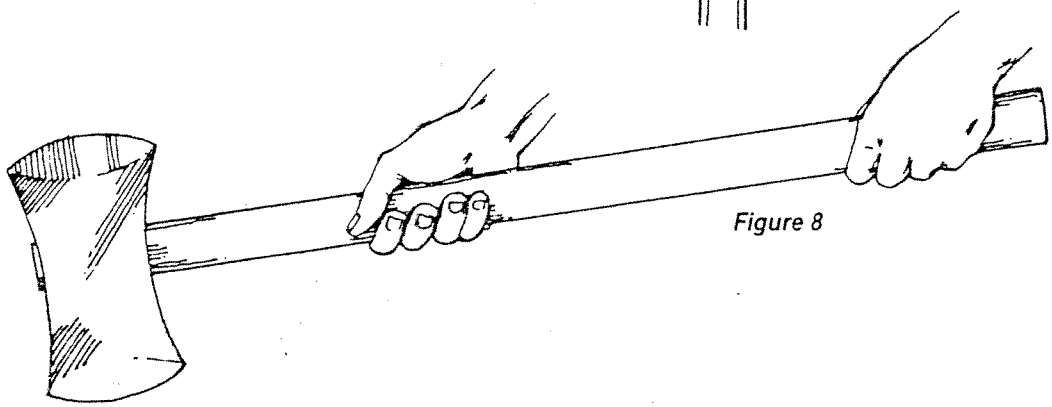


Figure 8

ALWAYS PUT SAFETY FIRST WHENEVER YOU USE HAND TOOLS